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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,891	12/29/2004	Takashi Yamamizu	1141/73452	2719

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EXAMINER	
VAUGHN, MEGANN E	

ART UNIT	PAPER NUMBER
2859	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/519,891	YAMAMIZU ET AL.	
	Examiner	Art Unit	
	Megann E. Vaughn	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 6, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekoshi et al (US 6215308) in view of Minas et al (US 2002/0145426).

Regarding claims 1, 2, 6, and 9, Takekoshi et al discloses in figure 1, a MRI apparatus comprising:

a gantry including a pair of upper magnet (70) and lower magnet (40) arranged oppositely and concentrically in a vertical direction(), sandwiching a measurement space into which an object to be examined is inserted and a pair of columns (62, 64) supporting the upper magnet installed over the outer parts of the upper magnet and the lower magnet in the vertical direction (column 2, lines 60-67 to column 3, line 1), and

a bed (10) on which the object is placed, including (i) a bed base (14) and (ii) a top plate (12) inserted into the measurement space (column 3, lines 21-23),

wherein the bed base is movable along the periphery of the gantry (column 3, lines 45-47), and the top plate is moved along a longitudinal and a transverse direction of the bed base (column 3, lines 11-13).

Takekoshi et al does not disclose that the pair of columns is oppositely arranged with respect to a central axis of the upper and lower magnet, and a cross sectional area of one column of the pair of columns is made smaller than that of the other.

Minas et al discloses in figure 10, a MRI apparatus comprising an upper and lower magnet pair with a pair of columns (94, 96), wherein the pair of columns is oppositely arranged with respect to a central axis of the upper and lower magnet (paragraph [0014], lines 4-6, paragraph [0034], lines 6-8), and a cross sectional area of one column (94) of the pair of columns is made 1/2 or smaller of that of the other column (Minas et al., paragraph [0015], lines 6-8, Fig 10). Regarding claim 9, Minas et al. further teach that the side surface of the column with a large cross sectional area (96) facing the magnet center is tapered with its top pursed toward an end (see Fig 10).

Therefore it would have been obvious to a person having ordinary skill in the art at the time that the invention was made to arrange the columns, disclosed by Takekoshi et al, and to make one of the columns smaller than the other while the larger one is tapered in the direction of the center of the magnet as taught by Minas et al in order to accommodate different types of loading, and to create a high degree of openness in order to improve patient comfort and accessibility (paragraphs [0014]-[0016]), respectively.

Regarding lines 11-15 of claim 1 and lines 12-14 of claim 6, which states that the bed is disposed at the side of the column with small cross sectional area or that the bed base extends longitudinally, respectively, with respect to a line perpendicular to both a line connecting the centers of the pair of columns and a line passing through the center

of the pair of magnets; these limitations are considered inherent, since a MRI apparatus having the disclosed or modified structure is always going have a perpendicular line connecting the centers of the pair of columns as well as a line passing through the center of the pair of magnets, therefore when a bed is inserted between the two columns, closer to the smaller cross sectional area column, it is inevitable that the bed is inserted with respect to these two perpendicular lines. Minas et al discloses that the bed can be disposed anywhere between the two columns (paragraph [0003]) and therefore that the bed is disposed at the side of the column with a small cross sectional area with respect to these previously discussed perpendicular lines.

Regarding claim 7, Takekoshi discloses in figure 1, a bed fixing section (42) connected to a connecting section of the bed, wherein the bed fixing section (42) is disposed so that the top plate is inserted from a predetermined position toward the center of the magnets (column 3, lines 1-5), and the bed is fixed by connecting the connecting section of the bed with the bed fixing section (42).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takekoshi et el (US 6215308) in view of Minas et al (US 2002/0145426) as applied to claims 1, 2, 6, 7, and 9 above, and further in view of Chari et al. (US 5436607).

The combination of Takekoshi et al and Minas et al does not teach the pair of columns having a shape curved toward outside.

Chari et al disclose in figure 1, an open MRI magnet design in which the support (18) is bulged outward in the center (column 2, lines 48-49). Therefore, it would have been obvious to a person of ordinary skill in the art at the time that the invention was made to apply this design feature of Chari et al to the support columns of Takekoshi et al and Minas et al modified structure in order to provide better access to the imaging volume (Chari et al., column 2, lines 28-32).

4. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekoshi et el (US 6215308) in view of Minas et al (US 2002/0145426) as applied to claims 1, 2, 6, 7, and 9 above, and further in view of Kaufman et al (US 5517121).

Regarding claims 5 and 10, the combination of Takekoshi et al and Minas et al does not teach that the direction of the line perpendicular to the line connecting the centers of the pair of columns and the line passing through the center of the pair of magnets intersects with a direction of the top plate insertion at an angle of 15 to 45 degrees or 25 to 35 degrees, respectively.

Kaufman et al teach that the direction of the line perpendicular to the line connecting the centers of the pair of columns and passing through the center of the pair of magnets intersects with the direction of the top plate insertion at an angle of 30 degrees (Fig 3B, 4B; column 5, lines 10-12). Therefore it would have been obvious to a person having ordinary skill in the art at the time that the invention was made to insert the table at an angle of 30 degrees in order to move the patient without losing the open unobstructed side access to the patient.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takekoshi et el (US 6215308) in view of Minas et al (US 2002/0145426) as applied to claims 1, 2, 6, 7, and 9 above, and further in view of Danby et al. (US 6828792).

The combination of Takekoshi et al and Minas et al does not teach the pillar with small cross sectional area having a substantially rectangular cross section, and its longitudinal direction corresponding to the diameter direction of the magnet.

Danby et al. teach a support structure for an open MRI apparatus magnet (column 2, lines 14-35) wherein the support columns may be maintained at a required cross- sectional area without impairing access to the patient by making them rectangular in cross section with their longitudinal axis oriented in horizontal directions away from the pole axis (column 11, lines 17-28). Therefore, it would have been obvious to a person of ordinary skill in the art at the time that the invention was made to apply this design principle of Danby et al to the support pillars of Takekoshi et al and Minas et al's modified structure, in order to maintain sufficient cross sectional area to return the magnetic flux while avoiding obstructing access to the patient.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Kaufman (US 4829252), Murphy et al (US 6294915), Kamimura et al (US 2004/0232916) all disclose MRI apparatuses comprising open magnets and movable beds allowing for easier patient/object access.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megann E. Vaughn whose telephone number is 571-272-8927. The examiner can normally be reached on 8 am- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MEV
Patent Examiner Art Unit 2859
5/25/2006

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